

ICE-WORTHY RESEARCH SHIPS OF THE WORLD*
Including Icebreakers of Limited Scientific Capability and Availability

	Year Built	Name	Length (feet)	Displacement (tons)	SHP	Remarks
Argentina	1952	<i>General San Martin</i>	280	NA	NA	IB
	1979	<i>Admirante Irizar</i>	386	12,000	16,200	IB
	1979	<i>Puerto Deseado</i>	250	NA	NA	R
Canada	1956	<i>Baffin</i>	285	4,200	NA	R
	1963	<i>Narwhal</i>	251	2,220	NA	S
	1963	<i>Hudson</i>	296	4,660	NA	R
	1965	<i>Endeavour</i>	207	NA	NA	R
	1967	<i>Dawson</i>	196	NA	NA	R
	1954	<i>Labrador</i>	269	5,300	NA	IB
	1960	<i>John A. MacDonald</i>	290	9,000	15,000	IB
	1968	<i>Louis St. Laurent</i>	345	NA	24,000	IB
	1971	<i>Carino</i>	145	NA	NA	Charter research vessel (Carino Co. Ltd.).
	1976	<i>Polarsirkel</i>	162	NA	2,500	Charter research vessel (Carino Co. Ltd.).
	1978	<i>Pierre Radisson</i>	320	8,300	13,600	IB "R" Class (one under construction).
	1979	<i>Franklin</i>	320	8,300	13,600	IB "R" Class.
	1979	<i>Canmar Kigoriak</i>	300	7,700	16,300	Dome Petroleum experimental icebreaker.
	1983	<i>NA</i>	214		5,500	Charter research vessel (Carino Co. Ltd.).
Denmark	1957	<i>Tbala Dan</i>	247	NA	NA	Two J. Lauritzen Lines polar vessels frequently chartered for antarctic or arctic supply and scientific missions. Also five icebreakers.
	1961	<i>Nella Dan</i>	247	NA	NA	
Finland	1953	<i>Aranda</i>	173	NA	NA	R; Refurbished in 1976.
	1958	<i>Karhu</i>	243	3,540	7,500	IB
	1959	<i>Murtaja</i>	243	3,540	7,500	IB
	1960	<i>Sampo</i>	243	3,540	7,500	IB
	1963	<i>Tarmo</i>	277	4,890	12,000	IB
	1968	<i>Varma</i>	277	4,890	12,000	IB
	1970	<i>Apu</i>	284	4,890	12,000	IB
	1954	<i>Voima</i>	274	5,210	13,930	IB; Rebuilt in 1979.
	1975	<i>Urho</i>	344	9,660	22,000	IB
	1976	<i>Sisu</i>	344	9,660	22,000	IB
France	1961	<i>Jean Charcot</i>	246	NA	NA	Antarctic resupply and research.
	1972	<i>Marion-Dufresne</i>	365	NA	NA	
Germany (West)	1955	<i>Anton Dobrn</i>	205	NA	NA	R; Also four icebreakers.
	1973	<i>Explora</i>	234	NA	3,500	R
	1982	<i>NA</i>	332	NA	16,500	R
Japan	1965	<i>Fuji</i>	325	9,000	12,000	RIB
	1982	<i>Sbirase</i>	403	17,600	30,000	RIB
Norway	1958	<i>Joban Hjort</i>	172	NA	NA	F
	1960	<i>H.V. Sverdrup</i>	127	NA	NA	F
	1951/77	<i>Polaris</i>	175	NA	NA	Available for charter as research vessels. G.C. Rieber & Co., Bergen, Norway.
	1968	<i>Kvitbjorn</i>	135	NA	NA	
	1970	<i>Kvitungen</i>	135	NA	NA	
	1975	<i>Polarbjorn</i>	162	NA	2,500	
	1981	<i>Polar Queen</i>	214	NA	5,500	
Republic of South Africa	1961	<i>RSA</i>	223	NA	NA	S
	1978	<i>Agulhas</i>	354	NA	6,000	Antarctic resupply and research.
Sweden	1957	<i>Oden</i>	274	4,440	10,500	IB
	1964	<i>Tor</i>	277	4,890	12,000	IB
	1969	<i>Njord</i>	284	4,890	12,000	IB
	1974	<i>Atle</i>	344	9,660	22,000	IB
	1975	<i>Frej</i>	344	9,660	22,000	IB
	1979	<i>Ymer</i>	344	9,660	22,000	IB
United Kingdom	1955	<i>Explorer</i>	202	NA	NA	Formerly <i>Anita Dan</i> (1956), converted. Antarctic resupply and research.
	1962	<i>Discovery</i>	260	NA	NA	
	1968	<i>Endurance</i>	NA	NA	NA	
	1970	<i>Bransfield</i>	325	4,800	5,000	
UNITED STATES	1968	<i>Hero</i>	125	640	760	NSF antarctic wooden trawler-research vessel.
	1943	<i>Westwind</i>	269	5,300	10,000	IB; refurbished 1974, 1975.
	1945	<i>Northwind</i>	269	5,300	10,000	Decommission in 1980s.
	1954	<i>Glacier</i>	309	8,700	16,900	IB
	1975	<i>Polar Star</i>	399	12,000	18,000	IB
	1977	<i>Polar Sea</i>	399	12,000	60,000	IB

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	Year Built	Name	Length (feet)	Displacement (tons)	SHP	Remarks
U.S.S.R.	1952	<i>Polyarnik</i>	126	NA	NA	R
	1954	<i>OB</i>	426	NA	NA	R
	1956	<i>Pervenets</i>	128	NA	NA	R
	1956	<i>Okeanograf</i>	128	NA	NA	R
	1956	<i>Aysberg</i>	225	NA	NA	R
	1957	<i>Mikhail Lomonosov</i>	335	NA	NA	R
	1958	<i>Shtorm</i>	132	NA	NA	S
	1964	<i>Akademik Knipovich</i>	280	NA	NA	F
	1966	<i>Professor Weise</i>	408	6,900	NA	R
	1966	<i>Petr Pakhtusov</i>	221	NA	NA	S
	1967	<i>Akademik Shirsbov</i>	407	NA	NA	R
	1967	<i>Professor Zubov</i>	408	6,900	NA	R
	1969	<i>Priliv</i>	319	NA	NA	R
	1970	<i>Dimitriy Laptev</i>	224	NA	NA	S
	1970	<i>Dimitriy Ovtyn</i>	219	NA	NA	S
	1971	<i>Stepan Malygin</i>	217	NA	NA	S
	1971	<i>Dimitriy Sterlegov</i>	224	NA	NA	S
	1972	<i>Nikolay Kolomeytsev</i>	224	NA	NA	S
	1972	<i>Valerian Al'banov</i>	224	NA	NA	S
	1972	<i>Edward Toll</i>	224	NA	NA	S
	1973	<i>Vladimir Sukhotskiy</i>	224	NA	NA	S
	1974	<i>Nikolay Yevgenov</i>	224	NA	NA	S
	1974	<i>Sercey Kravkov</i>	224	NA	NA	S
	1975	<i>Mikhail Somov</i>	437	13,000	NA	R; AARI.
	1975	<i>Vsevolod Berezhkin</i>	180	NA	NA	R
	1976	<i>Professor Bogorov</i>	226	1,654	2,000	R
	1976	<i>Professor Kuventsov</i>	226	1,654	2,000	R
	1976	<i>Professor Vodjantskiy</i>	226	1,654	2,000	R
	1976	<i>Fedor Matisen</i>	226	1,654	2,000	S
	1977	<i>Georgin Maximov</i>	226	1,654	2,000	S
	1977	<i>Ivan Kiveev</i>	226	1,654	2,000	S
	1977	<i>Pavel Bashmakov</i>	226	1,654	2,000	S
	1977	<i>Jakov Smiritskiy</i>	226	1,654	2,000	S
	1978	<i>Otto Schmidt</i>	NA	3,650	5,400	R; AARI; icebreaker laboratory.
	1978	<i>Rudolf Samoylovich</i>	NA	NA	NA	R; AARI.
	1979	<i>Professor Shtokman</i>	226	1,654	5,000	S
	1980	<i>Akademik Mstislav Keldysh</i>	401	5,500	5,800	R
	Icebreakers:					
	1954	<i>Kapitan Belousov</i>	273	3,375	10,500	
	1956	<i>Kapitan Voronin</i>	273	4,375	10,500	
	1956	<i>Kapitan Melekhov</i>	273	4,375	10,500	
	1959	<i>Lenin</i>	440	16,000	44,000	N
	1960	<i>Moskva</i>	401	12,840	22,000	
	1961	<i>Leningrad</i>	401	12,840	22,000	
	1965	<i>Kiev</i>	401	12,840	22,000	
	1968	<i>Murmansk</i>	401	12,840	22,000	
	1969	<i>Vladivostok</i>	401	12,840	22,000	
	1974	<i>Yermak</i>	442	20,240	36,000	
	1975	<i>Arktika</i>	492	23,400	75,000	N; August 1977 voyage to North Pole.
	1975	<i>Admiral Makarov</i>	442	20,240	36,000	
	1976	<i>Kapitan Kosolapov</i>	185	2,045	3,400	IB
	1976	<i>Kapitan M. Izmaylov</i>	185	2,045	3,400	IB
	1977	<i>Sibir</i>	492	23,400	75,000	N
	1977	<i>Kapitan Sorokin</i>	434	14,900	22,000	
	1978	<i>Kapitan Nikolayev</i>	434	14,900	22,000	
	1980	<i>Kapitan Dranitsyn</i>	434	14,900	22,000	IB
	1981	<i>Kapitan Khlebnikov</i>	434	14,900	22,000	IB

*Including Icebreakers of limited scientific capability and availability.

ABBREVIATIONS:

NA, not available; R, dedicated research vessel; F, fisheries research; S, survey vessel; IB, icebreaker, limited scientific capability or availability; AARI, Arctic and Antarctic Research Institute, Leningrad; SHP, shaft horsepower; N, nuclear-powered.

NOTES:

Eltanin, built in 1957, loaned to Argentina 1974-1979 (Islas Orcadas), returned to United States, not in service. Some U.S. ships, such as R/V *Alpha Helix*, have modest ice-strengthening insufficient for sustained, unaided operations in sea ice.

Poland has modern ice-worthy trawlers and at least one research vessel which have been used in exploratory antarctic krill investigations.

U.S.S.R. information incomplete; many modern ice-worthy trawlers and cargo vessels in national fleet, some occasionally used as research ships.

Zverobol Class stern trawlers (237 feet, 3,300 SHP) used for marine mammal-fisheries research in sea ice. Several icebreakers built in Finland.

The world inventory of icebreakers (in service and on order) numbers about 130 ships. Approximately one-third of these are of U.S.S.R. registry.

The Wärtsilä shipyard in Finland is the primary supplier of icebreakers to the world, having built at least one-half of all tonnage in this category since 1945. That firm has prepared a project design for a new icebreaker for year-round polar service having 50,000 tons displacement and 140,000 SHP.

Canada has plans for a "Polar 10" icebreaker, 150,000 SHP.

Australia is planning a research ship specifically for antarctic work.

People's Republic of China plans to build a 280-foot, ice-strengthened research vessel.

Source: Hearings before the Senate Committee on Governmental Affairs, which credited the following: The Motor Ship; Oceanographic Vessels of the World; Polar Operations, MacDonald, 1969; Polar Record; Polar Times; Ship and Boat International; National Science Foundation; AARI, Leningrad; Oy. Wärtsilä, AB, Finland; G.C. Rieber Co., Norway; J. Lauritzen Lines, Denmark; German and Milne, Montreal; Dr. T. Armstrong, Scott Polar Research Institute; compiled by R. Elsner, 1971; revised, 1973, 1978, 1980, 1982.

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